



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,823	03/17/2004	June-o Song	030681-635	2523
21839	7590	02/09/2005	EXAMINER	
BURNS DOANE SWECKER & MATHIS L L P			DICKEY, THOMAS L	
POST OFFICE BOX 1404			ART UNIT	
ALEXANDRIA, VA 22313-1404			PAPER NUMBER	
			2826	

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/801,823

Applicant(s)

SONG ET AL

Examiner

Thomas L. Dickey

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2004.  
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.  
4a) Of the above claim(s) 17 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,5 and 8-16 is/are rejected.  
7) ☒ Claim(s) 2-4,6 and 7 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/17/04; 9/22/04.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

Art Unit: 2826

## **DETAILED ACTION**

1. The preliminary amendment filed 03/17/04 has been entered.

### ***Election/Restriction***

2. Applicant's election of Group II, claims 1-16 in the Paper mailed 12/29/2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Oath/Declaration***

3. The oath/declaration filed on 03/17/2004 is acceptable.

### ***Drawings***

4. The formal drawings filed on 03/17/2004 are acceptable.

### ***Priority***

5. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Art Unit: 2826

***Information Disclosure Statement***

6. The Information Disclosure Statements filed on 03/17/2004 and 09/22/2004 have been considered.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In lines 3 and 4 of said claim, "the third and the fourth electrode layers" have no antecedent basis.

Correction is required.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 2826

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

**A.** Claims 8 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by HUANG ET AL. (6,693,352).

Huang et al. discloses a thin film electrode for forming an ohmic contact in light emitting diodes or laser diodes, comprising a first electrode layer 36 laminated on a p-type gallium nitride layer 35 and including alloys (solid solutions) of Ni—X, X being In, Sn, Cr, or Zn, and a second electrode layer 37A laminated on the first electrode and including ITO, which is a compound selected from the group consisting of transparent conductive oxides and transparent conductive nitrides, and a third electrode layer (conductive pad 38) laminated on the second electrode layer 37A and including Aluminum or Rhenium, which are selected from the group consisting of Al, Ag and Rh. Note figures 3-5, column 2 lines 45-64, column 4 lines 43-55, and column 5 lines 45-52 of Huang et al.

**B.** Claims 5 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by HO ET AL. (2002/0185732).

With respect to claim 5, Ho et al. discloses a thin film electrode for forming an ohmic contact in light emitting diodes or laser diodes, comprising a first electrode layer 14 laminated on a p-type gallium nitride layer 10 and including Au, Pt, Rh, Ru, or Ir, thus at least one element selected from the group consisting of Au, Pt, Pd, Ni, Ru, Rh, Re, C, Cu and Ir; and a second electrode layer 12 laminated on the first electrode layer 14 and

Art Unit: 2826

including a solid solution of various oxides such as NiO/CoO, thus a Ni--X solid solution.

Note figure 1 and paragraphs 15,16, and 26 of Ho et al.

With respect to claim 10, Ho et al. discloses a thin film electrode for forming an ohmic contact in light emitting diodes or laser diodes, comprising a first electrode layer 12 laminated on a p-type gallium nitride layer 10 and including a solid solution of various oxides such as NiO/CoO, thus a Ni--X solid solution; and a second electrode layer 14 laminated on the first electrode (note that in some places layer 14 is over layer 12, in some places this relationship is reversed) and including Au, Pt, Rh, Ru, or Ir, thus at least one element selected from the group consisting of Al, Ag and Rh. Note figure 1 and paragraphs 15,16, and 26 of Ho et al.

C. Claims 1 and 11-15 are rejected under 35 U.S.C. 102(b) as being anticipated by NITTA ET AL. (6,281,526).

Nitta et al. discloses a thin film electrode for forming an ohmic contact in light emitting diodes or laser diodes, comprising a first electrode layer 26' laminated on a p-type gallium nitride layer 24 and including a Ni--X solid solution; and a second electrode layer 34A laminated on the first electrode and including Au, Pt, Pd, Rh, Cu, or Ru, elements selected from the group consisting of Au, Pt, Pd, Ni, Ru, Rh, Re, C, Cu and Ir, wherein the Ni-based (Ni--X) solid solution includes nickel (Ni) as a matrix metal, and X is between 1 atomic percent to about 49 atomic percent of at least one element selected from the group consisting of group II elements, said group II elements including S, Se, or Te, element selected from the group consisting of Mg, Be, Ca and Zn, group

Art Unit: 2826

VI elements, said group VI elements including one element selected from the group consisting of S, Se and Te, and Sc, Y, Ge, Sn and Sb, the electrode layers formed from the Ni-based solid solution have a thickness of 1 to about 1,000 angstroms, and the first, the second, (there being no third or fourth) electrode layers have an overall thickness of 1 to about 10,000 angstroms, and wherein the p-type gallium nitride has a composition of  $\text{Al}_x\text{In}_y\text{Ga}_z\text{N}$  (where  $0 \leq x \leq 1$ ,  $0 \leq y \leq 1$ ,  $0 \leq z \leq 1$ , and  $x+y+z=1$ ). Note figure 5A, column 3 lines 19-22 and 39-50, column 10 lines 4-24, and column 11 lines 26-30 of Nitta et al.

### ***Allowable Subject Matter***

9. Claims 2-4, 6, and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

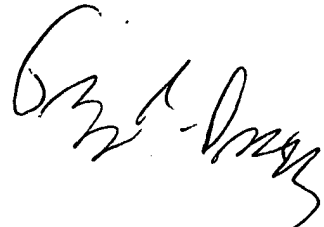
### ***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L Dickey whose telephone number is 571-272-1913. The examiner can normally be reached on Monday-Thursday 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2826

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**Thomas L. Dickey**  
**Patent Examiner**  
**Art Unit 2826**  
**02/05**